

STATE OF TENNESSEE

Office of the Attorney General



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CORDELL HULL AND JOHN SEVIER
STATE OFFICE BUILDINGS
TELEPHONE 615-741-3391
FACSIMILE 615-741-2009

Reply to:
Consumer Advocate and Protection Division
Post Office Box 20207
Nashville, TN 37202

June 13, 2003

Honorable Sara Kyle
Chairman
Tennessee Regulatory Authority
460 James Robertson Parkway
Nashville, Tennessee 37243

RE: In Re: Petition of Tennessee American Water Company to Change and Increase Certain Rates and Charges So As to Permit it to Earn a Fair and Adequate Rate of Return on Its Property Used and Useful in Furnishing Water Service to Its Customers
Docket No. 03-00118

Dear Chairman Kyle:

Enclosed is an original and thirteen copies of a letter to sent to R. Dale Grimes, attorney for Tennessee-American Water Company ("TAWC"), concerning TAWC's Motion for Leave to Propound Additional Interrogatories on the Consumer Advocate and Protection Division of the Office of the Attorney General. Copies are being sent to all parties of record. If you have any questions, kindly contact me at (615) 532-3382. Thank you.

Sincerely,

A handwritten signature in dark ink, appearing to read "Vance L. Broemel".

Vance L. Broemel
Assistant Attorney General

Enclosures

cc: Dale Grimes, Esq.

65881

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Sincerely,

Vance L. Broemel
Assistant Attorney General

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FACSIMILE: (615) 532-2910

June 13, 2003

R. Dale Grimes, Esq.
Bass, Berry & Sims, P.L.C.
315 Deaderick Street, Suite 2700
Nashville, TN 37238-0002

RE: In Re: Petition of Tennessee American Water Company to Change and Increase Certain Rates and Charges So As to Permit it to Earn a Fair and Adequate Rate of Return on Its Property Used and Useful in Furnishing Water Service to Its Customers
Docket No. 03-00118

Dear Dale:

This letter is in response to our meeting with you at our offices on Tuesday, June 10, 2003 concerning the Tennessee-American Water Company's ("TAWC") Motion for Leave to Propound Additional Interrogatories On the CAPD filed on June 6, 2003. As mentioned in our Response and Objection to TAWC's Motion for Leave, we are willing to cooperate with you and do what we can to reasonably comply with your request. As discussed, during the meeting, we provided you with several responses to TAWC's interrogatories. The following details each interrogatory that we have already discussed and any additional responses that we could provide.

SNB-1 Testimony pages 1 through 59. Please provide an electronic copy of the testimony in either Microsoft Word or Corel WordPerfect.

ANSWER: Provided to TAWC on June 9, 2003.

SNB-2 Exhibit CAPD-SB 1 through SB 16. Please provide an electronic copy of the schedules that were prepared either Microsoft Excel or Lotus spreadsheet format.

ANSWER: Provided to TAWC on June 10, 2003.

SNB-3 Testimony pages 1 through 3. Has Dr. Brown previously submitted rate of return testimony in rate cases for water utilities before the Tennessee Regulatory Authority or other regulatory agencies? If so, please provide a copy of those testimonies.

ANSWER: Testimony in TAWC's last rate case in TRA Docket 96-00959. TAWC should have a copy in their files. Public record on file at the TRA.

SNB-4 Testimony page 2 lines 16-18. Please provide copies of all articles published by Dr. Brown in "Public Utilities Fortnightly" and "Electricity Journal."

ANSWER: These were previously provided and/or made available for TAWC's inspection at our offices.

SNB-5 Testimony page 4 lines 17-19. Please provide support for the selection of the past 12 months to gauge achieved returns on equity for publicly traded companies in the United States.

ANSWER: This data is the latest available and most relevant to gauge current earnings.

SNB-6 Testimony page 4 lines 20-22. Please provide a list of the companies and their achieved returns that were less than 6.3%.

ANSWER: This list has not been printed because it would have been in excess of 100 pages. On June 10, 2003, we provided TAWC step-by-step instructions on how to obtain this information from Morningstar.com. Additionally, we mentioned that since Morningstar is a subscription service, it is necessary for TAWC to subscribe to their service and obtain the information.

SNB-7 Testimony page 4 lines 36-37. Please provide a list of each instance where the Company's evidence of the cost of equity relied on statistical practices that are not in general practice. In the response please provide documentary support (e.g. references in textbooks, articles in scholarly journals, etc.) that defines statistical practices that are in general practice.

ANSWER: This was provided to TAWC during our meeting with Dale Grimes on June 10, 2003.

SNB-8 Testimony page 12 lines 6-7. Please provide support for the assertion that American Water Works is no longer the parent of Tennessee-American.

ANSWER: This was provided to TAWC on June 10, 2003.

SNB-9 Testimony page 12 lines 18-25. Please indicate if Dr. Brown is aware of any instances where a utility without a parent company affiliation has paid out dividends in excess of earnings. If he is aware of any instances, please list the company, the dates, and dividend payout ratios.

ANSWER: Piedmont Natural Gas has paid out dividends in excess of earnings. See order in TRA Docket 96-00977.

SNB-10 Testimony page 16 lines 1-4. Please provide a copy of all public records that indicate the RWE has the power to set prices for water supply service.

ANSWER: This has been provided to TAWC on June 10, 2003.

SNB-11 Testimony page 18 lines 31-36. Please explain how "provisions" with carrying costs are any different from tax or pension provisions that also cannot be claimed by equity holders.

ANSWER: This question goes beyond the scope of Steven N. Brown's testimony.

SNB-12 Testimony page 23 lines 15-28 and Exhibit CAPD-SB 2. Please provide the following items: (a) please indicate whether the returns shown on Exhibit CAPD-SB 2 are based on market values or book values, (b) please indicate the methodology used to calculate the returns if they are market based, e.g., do they include dividends and reinvestment of those dividends, (c) please indicate the methodology used to calculate the returns if they are book value based, e.g., are they calculated on year-end or average book value and is income stated before or after preferred and/or common dividends, and (d) please provide the initial date (month, day and year) and terminal date (month, day and year) for these calculations.

ANSWER: Morningstar defines "ROE%" as: "The percentage a company earns on its total equity. The calculation is the trailing 12 months' net income divided by the most recently reported book value. The resulting figure is multiplied by 100. In comparison, the industry average and S&P 500 are shown for the most recent fiscal year."

SNB-13 Testimony page 23 lines 33-34. Are the returns from the regulated companies those that were determined by a regulatory agency in a rate case proceeding? If not, please provide those authorized returns established by the respective regulatory agencies.

ANSWER: No, they were obtained from Morningstar.

SNB-14 Testimony page 25 lines 34-35. Of the firm's shown on Exhibit CAPD-SB 2, please identify "one of the firms" and its associated rate of return.

ANSWER: See SNB Exhibit. Schedule 2, Page 2, Xcel Energies. The ROE is less than 1%.

SNB-15 Testimony page 28 lines 20-21. Please provide the names, addresses, telephone numbers, and notes from conversations that Dr. Brown has had with banks, mortgage lenders, homebuyers and businesses that are betting that current interest rate conditions will prevail for the foreseeable future. Also, please define in terms of days, months or years "foreseeable future."

ANSWER: None. The "foreseeable future" would be approximately nine (9) months.

SNB-16 Testimony page 34 lines 6-11. Please identify the two additional companies listed on the American Stock Exchange.

ANSWER: This was provided to TAWC on June 10, 2003. SNB Exhibit. This schedule cites two companies on the NASDAQ exchange (which is another American stock exchange). We believe that there was a misunderstanding concerning our statement and we referred to the American stock exchanges generally and not to the specific stock exchange.

SNB-17 Testimony page 36 lines 5-9 and Exhibit CAPD-SB 7. Please identify the specific companies that are on the cusp of mergers or acquisitions based upon the SEC filings listed on Exhibit CAPD-SB 7.

ANSWER: This was provided to TAWC during our meeting with Dale Grimes on June 10, 2003. SEC filings indicate interest in acquisition of larger portions of the company's stock.

SNB-18 Testimony page 37 lines 2-3. Please identify the specific risk measured by beta, e.g., business risk, financial risk, investment risk, etc.

ANSWER: Beta is a calculation. Beta does not measure a specific risk, but rather the results of systematic risks and the effects of those risks on market price movement relative to other investments.

SNB-19 Testimony page 37 lines 32-34. Please provide the names, addresses, telephone numbers, and notes from conversations that Dr. Brown has had with professionals in the "financial industry" concerning Value Line betas.

ANSWER: None.

SNB-20 Testimony page 37 lines 34-38. Please explain why Merrill Lynch betas were not included in Exhibit CAPD-SB 8. Is Merrill Lynch part of the "financial industry?"

ANSWER: Not considered.

SNB-21 Testimony page 37 lines 34-38 and Exhibit CAPD-SB 8. Please provide a hard copy of the source documents for each beta listed on Exhibit CAPD-SB 8.

ANSWER: See Attachment A. Data for CAPD's beta are provided. Other betas can be found on the Internet.

SNB-22 Testimony page 38 line 1 and Exhibit CAPD-SB 8. Please provide the source documents, the variables, and workpapers used to compute the CAPD betas. Specifically, include the individual stock prices and dividends used in calculating the returns, the market index, the measurement interval (weekly, monthly, etc.), and all regression statistics related to each beta.

ANSWER: Discussed during our meeting with Dale Grimes on June 10, 2003. We can answer the first part of this question by referring you to Attachment A and we cannot answer the second part of this question because it is not relevant since Attachment A should provide all pertinent data requested.

SNB-23 Testimony page 49 lines 24-25. Please provide copies of documentary support (references in textbooks, articles in scholarly journals, etc.) that support the statement "... a process often described as leveraging an equity beta into an asset beta."

ANSWER: This was previously provided to TAWC in our meeting with Dale Grimes on June 10, 2003. (See Answer to SNB-7).

SNB-24 Testimony page 50 lines 2-4. Please provide copies of documentary support (references in textbooks, articles in scholarly journals, etc.) for the assertion "'asset beta' has no particular economic measuring because a company's book value can stay constant while betas fluctuate."

ANSWER: This was previously provided to TAWC during our meeting with Dale Grimes on June 10, 2003. (See Answer to SNB-7). Additionally, refer to testimony with the Australian study.

SNB-25 Testimony page 50 lines 9-15. Please provide a complete copy of- "Final Report, Empirical Evidence on Proxy Beta Values for Regulated Gas Transmission Activities: July 2002 Report for the Australian Competition and Consumer Commission," prepared by the Allen Consulting Group of Melbourne, Australia.

ANSWER: This was provided to TAWC during our meeting with Dale Grimes on June 10, 2003 and explained to him that it was already provided to TAWC. The source for the study was in Dr. Brown's testimony on Page 50.

SNB-26 Testimony page 53 lines 33-38 and Exhibit CAPD-SB 14. Please provide a copy of the source documents for this schedule. Specifically provide: (a) a printout of each www.morningstar.com page, (b) the price per share and dividends per share value used for the yield calculation, (c) the date(s) of the prices used in the yield calculation, (d) a statement of whether the dividend amount in the yield calculation shown in column 7 was reflective of the expected dividend in the next period, (e) the methodology used to compute the dividend growth rate shown in column 6, and (f) the workpapers showing the calculation of each dividend growth rate shown in column 6.

ANSWER: Morningstar defines "Dividend Yield %" as: "A stock's most recent four quarters' worth of dividends as a percentage of the current stock price. For comparison, we also show the average dividend yields for the company's industry, the S&P 500, and the stock's own five-year average."

SNB-27 Testimony page 54 lines 9-10. Please provide the names, addresses, telephone numbers, and notes of conversations that Dr. Brown has had with individual and/or institutional investors in the context of: "The DCF model does exactly what every investor does."

ANSWER: None.

SNB-28 Testimony page 54 lines 9-10. Please provide copies of documentary support (references in textbooks, articles in scholarly journals, etc.) that supports the assertion that: "The DCF model does exactly what every investor does."

ANSWER: None. This is Dr. Brown's professional opinion. (i.e., all investors invest with the expectation of receiving a future return of the investment plus earnings. Earnings that are farther in the future are discounted as being less valuable as time progresses).

SNB-29 Testimony page 54 lines 25-27. Please provide copies of documentary support (references in textbooks, articles in scholarly journals, etc.) that: "The DCF model neither protects investors from risk nor penalizes them for what happens in the stock market."

ANSWER: None.

SNB-30 Testimony page 56 lines 14-19. Please provide copies of documentary support (references in textbooks, articles in scholarly journals, etc.) that specifies the use of the cost-of-debt as a substitute for the risk-free rate of return in the CAPM.

ANSWER: Page 173 from "Financial Markets and Corporate Strategy" (See Attachment B)

SNB-31 Testimony page 56 lines 27-33 and Exhibit CAPD-SB 15. Please provide the source documents for the betas for each company, industry, sector and S&P 500 listed therein. Also, please provide the names of the companies that comprise the industry and sector.

ANSWER: On June 10, 2003, we provided TAWC with instructions on how to obtain this information from Morningstar.com.

SNB-32 Testimony page 56 lines 27-33. Please provide the source document for the market return ("R_m") of 15%.

ANSWER: Mr. Moul's direct testimony, page 37, line 23.

$$(R_m - R_f = 10.58)$$

$$R_m - R_f = 5.25$$

$$R_m - R_f = 15.83$$

SNB-33 Testimony page 56 lines 27-33. Please provide the workpapers for the 7.5% return.

R. Dale Grimes, Esq.
June 13, 2003
Page 8

ANSWER: $7.5 = 6 + .1 \times 15.83$

SNB-34 Testimony page 58 lines 2-3 and Exhibit CAPD-SB 13. Please provide the workpapers and source documents showing the development of the equity ratio and debt ratio for each of the twelve water companies. Specifically, please provide the date of the ratios, the dollar amount of equity, and the dollar amount of debt for each company.

ANSWER: On June 10, 2003, we provided TAWC with instructions on how to obtain this information from Morningstar.com.

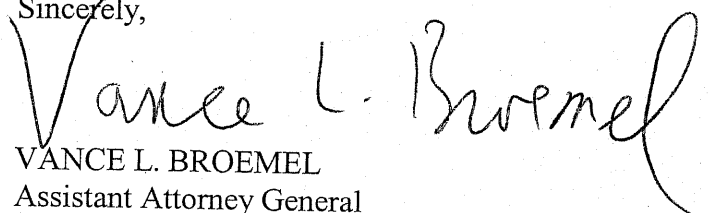
SNB-35 Testimony page 58 lines 22-25 and Exhibit CAPD-SB 16. Please provide the workpapers showing the 6.00% parent company cost of debt.

ANSWER: SNB Schedule 1, Page 2-3 and Company Response to CAPD Second Round of Discovery #10.

Additionally during our meeting on June 10, 2003, you indicated to us that the crucial interrogatories that TAWC needed responses to were # 1, 2, 6, 22, 26 and 34. We have provided responses to those question as best we could. We must reiterate that although the discovery phase of this matter was concluded on May 14, 2003 under the procedural schedule established by the hearing officer, we made a good faith effort to comply with your request in the spirit of cooperation.

Finally, as you may already know, your motion for leave was affirmed in part and denied in part and a notice was issued on June 12, 2003 by the hearing officer in this matter and we are required to file responses with the Tennessee Regulatory Authority by Tuesday, June 17, 2003. If you have any questions, please feel free to contact us at (615) 532-3382. Thank you for your anticipated cooperation and attention in this matter.

Sincerely,


VANCE L. BROEMEL
Assistant Attorney General
(615) 741-8733

ATTACHMENT A

| Ticker Month Ending Closing Price Company's Closing price SP 500 Index Value | | | |
|--|------------|---------|---------|
| ATG | 3/31/1998 | 21.5 | 1101.76 |
| ATG | 4/30/1998 | 20.8125 | 1111.75 |
| ATG | 5/29/1998 | 20 | 1090.82 |
| ATG | 6/30/1998 | 19.875 | 1133.86 |
| ATG | 7/31/1998 | 18.8125 | 1120.73 |
| ATG | 8/31/1998 | 18.3125 | 957.43 |
| ATG | 9/30/1998 | 19.375 | 1017.06 |
| ATG | 10/30/1998 | 20.9375 | 1098.69 |
| ATG | 11/30/1998 | 21.5625 | 1163.7 |
| ATG | 12/31/1998 | 23.0625 | 1229.4 |
| ATG | 1/29/1999 | 20.125 | 1279.64 |
| ATG | 2/26/1999 | 19.0625 | 1238.33 |
| ATG | 3/31/1999 | 17.5625 | 1286.41 |
| ATG | 4/30/1999 | 18.1875 | 1335.18 |
| ATG | 5/28/1999 | 18.875 | 1301.85 |
| ATG | 6/30/1999 | 18.4375 | 1372.86 |
| ATG | 7/30/1999 | 18.875 | 1328.72 |
| ATG | 8/31/1999 | 18.0625 | 1320.41 |
| ATG | 9/30/1999 | 16.1875 | 1287.53 |
| ATG | 10/29/1999 | 17.375 | 1363.27 |
| ATG | 11/30/1999 | 18.5 | 1389.41 |
| ATG | 12/31/1999 | 17 | 1469.25 |
| ATG | 1/31/2000 | 17.1875 | 1393.12 |
| ATG | 2/29/2000 | 17.0625 | 1367.73 |
| ATG | 3/31/2000 | 18.375 | 1503.54 |
| ATG | 4/28/2000 | 17.5 | 1452.53 |
| ATG | 5/31/2000 | 16.625 | 1420.39 |
| ATG | 6/30/2000 | 15.9375 | 1451.8 |
| ATG | 7/31/2000 | 18.0625 | 1431.06 |
| ATG | 8/31/2000 | 18.9375 | 1517.68 |
| ATG | 9/29/2000 | 20.0625 | 1437 |
| ATG | 10/31/2000 | 20.375 | 1429.01 |
| ATG | 11/30/2000 | 22.5 | 1315.13 |
| ATG | 12/29/2000 | 22.0625 | 1320.14 |
| ATG | 1/31/2001 | 20.5 | 1366.02 |
| ATG | 2/28/2001 | 21.56 | 1239.95 |
| ATG | 3/30/2001 | 21.91 | 1160.33 |
| ATG | 4/30/2001 | 22.85 | 1249.46 |
| ATG | 5/31/2001 | 23.5 | 1255.82 |
| ATG | 6/29/2001 | 23.75 | 1228.39 |
| ATG | 7/31/2001 | 24 | 1211.07 |
| ATG | 8/31/2001 | 21.3 | 1133.58 |

| | | | |
|-----|------------|---------|---------|
| ATG | 9/28/2001 | 19.97 | 1040.9 |
| ATG | 10/31/2001 | 20.65 | 1059.96 |
| ATG | 11/30/2001 | 21.43 | 1139.16 |
| ATG | 12/31/2001 | 23.02 | 1148.08 |
| ATG | 1/31/2002 | 21.28 | 1130.2 |
| ATG | 2/28/2002 | 22.25 | 1106.73 |
| ATG | 3/28/2002 | 23.5 | 1147.39 |
| ATG | 4/30/2002 | 23.94 | 1076.75 |
| ATG | 5/31/2002 | 22.9 | 1067.13 |
| ATG | 6/28/2002 | 23.2 | 989.82 |
| ATG | 7/31/2002 | 22.72 | 910.6 |
| ATG | 8/30/2002 | 22.98 | 915.7 |
| ATG | 9/30/2002 | 22.09 | 815.28 |
| ATG | 10/31/2002 | 23.5 | 885.76 |
| ATG | 11/29/2002 | 24.11 | 936.31 |
| ATG | 12/31/2002 | 24.3 | 879.82 |
| ATG | 1/31/2003 | 22.85 | 855.7 |
| ATG | 2/28/2003 | 22.15 | 841.15 |
| ATO | 3/31/1998 | 29.625 | 1101.76 |
| ATO | 4/30/1998 | 29.4375 | 1111.75 |
| ATO | 5/29/1998 | 30.75 | 1090.82 |
| ATO | 6/30/1998 | 30.5 | 1133.86 |
| ATO | 7/31/1998 | 29.25 | 1120.73 |
| ATO | 8/31/1998 | 28.375 | 957.43 |
| ATO | 9/30/1998 | 28.5625 | 1017.06 |
| ATO | 10/30/1998 | 29.6875 | 1098.69 |
| ATO | 11/30/1998 | 30.625 | 1163.7 |
| ATO | 12/31/1998 | 32.25 | 1229.4 |
| ATO | 1/29/1999 | 29.8125 | 1279.64 |
| ATO | 2/26/1999 | 24 | 1238.33 |
| ATO | 3/31/1999 | 24.0625 | 1286.41 |
| ATO | 4/30/1999 | 25.25 | 1335.18 |
| ATO | 5/28/1999 | 25.375 | 1301.85 |
| ATO | 6/30/1999 | 25 | 1372.86 |
| ATO | 7/30/1999 | 25 | 1328.72 |
| ATO | 8/31/1999 | 25.0625 | 1320.41 |
| ATO | 9/30/1999 | 24.5 | 1287.53 |
| ATO | 10/29/1999 | 22.6875 | 1363.27 |
| ATO | 11/30/1999 | 22.3125 | 1389.41 |
| ATO | 12/31/1999 | 20.4375 | 1469.25 |
| ATO | 1/31/2000 | 17.5 | 1393.12 |
| ATO | 2/29/2000 | 17.125 | 1367.73 |
| ATO | 3/31/2000 | 16.375 | 1503.54 |

| | | | |
|-----|------------|---------|---------|
| ATO | 4/28/2000 | 15.875 | 1452.53 |
| ATO | 5/31/2000 | 18.3125 | 1420.39 |
| ATO | 6/30/2000 | 17.5 | 1451.8 |
| ATO | 7/31/2000 | 20.625 | 1431.06 |
| ATO | 8/31/2000 | 20.75 | 1517.68 |
| ATO | 9/29/2000 | 20.625 | 1437 |
| ATO | 10/31/2000 | 23.125 | 1429.01 |
| ATO | 11/30/2000 | 25.125 | 1315.13 |
| ATO | 12/29/2000 | 24.375 | 1320.14 |
| ATO | 1/31/2001 | 24.47 | 1366.02 |
| ATO | 2/28/2001 | 23.25 | 1239.95 |
| ATO | 3/30/2001 | 23.8 | 1160.33 |
| ATO | 4/30/2001 | 22.67 | 1249.46 |
| ATO | 5/31/2001 | 23.2 | 1255.82 |
| ATO | 6/29/2001 | 24.46 | 1228.39 |
| ATO | 7/31/2001 | 20.2 | 1211.07 |
| ATO | 8/31/2001 | 21.6 | 1133.58 |
| ATO | 9/28/2001 | 21.6 | 1040.9 |
| ATO | 10/31/2001 | 21.55 | 1059.96 |
| ATO | 11/30/2001 | 19.6 | 1139.16 |
| ATO | 12/31/2001 | 21.25 | 1148.08 |
| ATO | 1/31/2002 | 21.1 | 1130.2 |
| ATO | 2/28/2002 | 22.3 | 1106.73 |
| ATO | 3/28/2002 | 23.6 | 1147.39 |
| ATO | 4/30/2002 | 23.93 | 1076.75 |
| ATO | 5/31/2002 | 23.14 | 1067.13 |
| ATO | 6/28/2002 | 23.44 | 989.82 |
| ATO | 7/31/2002 | 21.25 | 910.6 |
| ATO | 8/30/2002 | 21.44 | 915.7 |
| ATO | 9/30/2002 | 21.5 | 815.28 |
| ATO | 10/31/2002 | 22 | 885.76 |
| ATO | 11/29/2002 | 22.3 | 936.31 |
| ATO | 12/31/2002 | 23.32 | 879.82 |
| ATO | 1/31/2003 | 22.4 | 855.7 |
| ATO | 2/28/2003 | 21.28 | 841.15 |
| AWR | 7/31/1998 | 24.75 | 1120.73 |
| AWR | 8/31/1998 | 23.5 | 957.43 |
| AWR | 9/30/1998 | 26.5 | 1017.06 |
| AWR | 10/30/1998 | 26.25 | 1098.69 |
| AWR | 11/30/1998 | 28.25 | 1163.7 |
| AWR | 12/31/1998 | 27.25 | 1229.4 |
| AWR | 1/29/1999 | 28.5625 | 1279.64 |
| AWR | 2/26/1999 | 28.1875 | 1238.33 |

| | | | |
|-----|------------|---------|---------|
| AWR | 3/31/1999 | 24.25 | 1286.41 |
| AWR | 4/30/1999 | 25.4375 | 1335.18 |
| AWR | 5/28/1999 | 26.6875 | 1301.85 |
| AWR | 6/30/1999 | 28.375 | 1372.86 |
| AWR | 7/30/1999 | 30.0625 | 1328.72 |
| AWR | 8/31/1999 | 35.25 | 1320.41 |
| AWR | 9/30/1999 | 33.125 | 1287.53 |
| AWR | 10/29/1999 | 34.3125 | 1363.27 |
| AWR | 11/30/1999 | 37.875 | 1389.41 |
| AWR | 12/31/1999 | 36 | 1469.25 |
| AWR | 1/31/2000 | 33.25 | 1393.12 |
| AWR | 2/29/2000 | 26.8125 | 1367.73 |
| AWR | 3/31/2000 | 29.75 | 1503.54 |
| AWR | 4/28/2000 | 30.125 | 1452.53 |
| AWR | 5/31/2000 | 29.8125 | 1420.39 |
| AWR | 6/30/2000 | 29.75 | 1451.8 |
| AWR | 7/31/2000 | 30.125 | 1431.06 |
| AWR | 8/31/2000 | 26.0625 | 1517.68 |
| AWR | 9/29/2000 | 30.25 | 1437 |
| AWR | 10/31/2000 | 31.1875 | 1429.01 |
| AWR | 11/30/2000 | 33.6875 | 1315.13 |
| AWR | 12/29/2000 | 36.875 | 1320.14 |
| AWR | 1/31/2001 | 31.39 | 1366.02 |
| AWR | 2/28/2001 | 30.3 | 1239.95 |
| AWR | 3/30/2001 | 33.11 | 1160.33 |
| AWR | 4/30/2001 | 32.9 | 1249.46 |
| AWR | 5/31/2001 | 30.4 | 1255.82 |
| AWR | 6/29/2001 | 34 | 1228.39 |
| AWR | 7/31/2001 | 34.28 | 1211.07 |
| AWR | 8/31/2001 | 37.85 | 1133.58 |
| AWR | 9/28/2001 | 37 | 1040.9 |
| AWR | 10/31/2001 | 33.25 | 1059.96 |
| AWR | 11/30/2001 | 35.49 | 1139.16 |
| AWR | 12/31/2001 | 34.95 | 1148.08 |
| AWR | 1/31/2002 | 36.2 | 1130.2 |
| AWR | 2/28/2002 | 34.95 | 1106.73 |
| AWR | 3/28/2002 | 35.25 | 1147.39 |
| AWR | 4/30/2002 | 38.9 | 1076.75 |
| AWR | 5/31/2002 | 37.99 | 1067.13 |
| AWR | 6/27/2002 | 27.25 | 989.56 |
| AWR | 7/31/2002 | 22 | 910.6 |
| AWR | 8/30/2002 | 24 | 915.7 |
| AWR | 9/30/2002 | 26.22 | 815.28 |

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|-----|------------|---------|---------|
| AWR | 10/31/2002 | 26.8 | 885.76 |
| AWR | 11/29/2002 | 23.9 | 936.31 |
| AWR | 12/31/2002 | 23.15 | 879.82 |
| AWR | 1/31/2003 | 22.89 | 855.7 |
| AWR | 2/28/2003 | 23.48 | 841.15 |
| CWT | 3/31/1998 | 27.0625 | 1101.76 |
| CWT | 4/30/1998 | 26.8125 | 1111.75 |
| CWT | 5/29/1998 | 22.1875 | 1090.82 |
| CWT | 6/30/1998 | 25.25 | 1133.86 |
| CWT | 7/31/1998 | 23.4375 | 1120.73 |
| CWT | 8/31/1998 | 21.875 | 957.43 |
| CWT | 9/30/1998 | 22.625 | 1017.06 |
| CWT | 10/30/1998 | 26.375 | 1098.69 |
| CWT | 11/30/1998 | 26.0625 | 1163.7 |
| CWT | 12/31/1998 | 31.3125 | 1229.4 |
| CWT | 1/29/1999 | 26.0625 | 1279.64 |
| CWT | 2/26/1999 | 24.5 | 1238.33 |
| CWT | 3/31/1999 | 24.5 | 1286.41 |
| CWT | 4/30/1999 | 22.9375 | 1335.18 |
| CWT | 5/28/1999 | 26 | 1301.85 |
| CWT | 6/30/1999 | 26.125 | 1372.86 |
| CWT | 7/30/1999 | 27.75 | 1328.72 |
| CWT | 8/31/1999 | 29.875 | 1320.41 |
| CWT | 9/30/1999 | 27.375 | 1287.53 |
| CWT | 10/29/1999 | 29 | 1363.27 |
| CWT | 11/30/1999 | 31.625 | 1389.41 |
| CWT | 12/31/1999 | 30.3125 | 1469.25 |
| CWT | 1/31/2000 | 26.625 | 1393.12 |
| CWT | 2/29/2000 | 27.125 | 1367.73 |
| CWT | 3/31/2000 | 22.8125 | 1503.54 |
| CWT | 4/28/2000 | 23.3125 | 1452.53 |
| CWT | 5/31/2000 | 23.3125 | 1420.39 |
| CWT | 6/30/2000 | 24.25 | 1451.8 |
| CWT | 7/31/2000 | 23.875 | 1431.06 |
| CWT | 8/31/2000 | 26.25 | 1517.68 |
| CWT | 9/29/2000 | 26.75 | 1437 |
| CWT | 10/31/2000 | 26.9375 | 1429.01 |
| CWT | 11/30/2000 | 26.9375 | 1315.13 |
| CWT | 12/29/2000 | 27 | 1320.14 |
| CWT | 1/31/2001 | 23.7 | 1366.02 |
| CWT | 2/28/2001 | 24.3 | 1239.95 |
| CWT | 3/30/2001 | 28.6 | 1160.33 |
| CWT | 4/30/2001 | 25.81 | 1249.46 |

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|-----|------------|---------|---------|
| CWT | 5/31/2001 | 24.75 | 1255.82 |
| CWT | 6/29/2001 | 25.65 | 1228.39 |
| CWT | 7/31/2001 | 23.95 | 1211.07 |
| CWT | 8/31/2001 | 26 | 1133.58 |
| CWT | 9/28/2001 | 27 | 1040.9 |
| CWT | 10/31/2001 | 25.25 | 1059.96 |
| CWT | 11/30/2001 | 26.5 | 1139.16 |
| CWT | 12/31/2001 | 25.75 | 1148.08 |
| CWT | 1/31/2002 | 24.28 | 1130.2 |
| CWT | 2/28/2002 | 24.73 | 1106.73 |
| CWT | 3/28/2002 | 25.6 | 1147.39 |
| CWT | 4/30/2002 | 24.9 | 1076.75 |
| CWT | 5/31/2002 | 23.9 | 1067.13 |
| CWT | 6/28/2002 | 25.2 | 989.82 |
| CWT | 7/31/2002 | 24.25 | 910.6 |
| CWT | 8/30/2002 | 25.3 | 915.7 |
| CWT | 9/30/2002 | 25.53 | 815.28 |
| CWT | 10/31/2002 | 24.86 | 885.76 |
| CWT | 11/29/2002 | 25.6 | 936.31 |
| CWT | 12/31/2002 | 23.65 | 879.82 |
| CWT | 1/31/2003 | 24.35 | 855.7 |
| CWT | 2/28/2003 | 25.41 | 841.15 |
| EGN | 3/31/1998 | 22 | 1101.76 |
| EGN | 4/30/1998 | 22.3125 | 1111.75 |
| EGN | 5/29/1998 | 20.3125 | 1090.82 |
| EGN | 6/30/1998 | 20.125 | 1133.86 |
| EGN | 7/31/1998 | 17.1875 | 1120.73 |
| EGN | 8/31/1998 | 15.625 | 957.43 |
| EGN | 9/30/1998 | 19 | 1017.06 |
| EGN | 10/30/1998 | 18 | 1098.69 |
| EGN | 11/30/1998 | 18 | 1163.7 |
| EGN | 12/31/1998 | 19.5 | 1229.4 |
| EGN | 1/29/1999 | 17.0625 | 1279.64 |
| EGN | 2/26/1999 | 14 | 1238.33 |
| EGN | 3/31/1999 | 14.9375 | 1286.41 |
| EGN | 4/30/1999 | 17.25 | 1335.18 |
| EGN | 5/28/1999 | 19.125 | 1301.85 |
| EGN | 6/30/1999 | 18.625 | 1372.86 |
| EGN | 7/30/1999 | 18.75 | 1328.72 |
| EGN | 8/31/1999 | 18.875 | 1320.41 |
| EGN | 9/30/1999 | 20.25 | 1287.53 |
| EGN | 10/29/1999 | 18.5 | 1363.27 |
| EGN | 11/30/1999 | 19.25 | 1389.41 |

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|-----|------------|---------|---------|
| EGN | 12/31/1999 | 18.0625 | 1469.25 |
| EGN | 1/31/2000 | 17.25 | 1393.12 |
| EGN | 2/29/2000 | 16.25 | 1367.73 |
| EGN | 3/31/2000 | 15.9375 | 1503.54 |
| EGN | 4/28/2000 | 18.3125 | 1452.53 |
| EGN | 5/31/2000 | 22.125 | 1420.39 |
| EGN | 6/30/2000 | 21.8125 | 1451.8 |
| EGN | 7/31/2000 | 22.25 | 1431.06 |
| EGN | 8/31/2000 | 25.9375 | 1517.68 |
| EGN | 9/29/2000 | 29.75 | 1437 |
| EGN | 10/31/2000 | 28.625 | 1429.01 |
| EGN | 11/30/2000 | 28.5625 | 1315.13 |
| EGN | 12/29/2000 | 32.1875 | 1320.14 |
| EGN | 1/31/2001 | 29.25 | 1366.02 |
| EGN | 2/28/2001 | 28.2 | 1239.95 |
| EGN | 3/30/2001 | 35.3 | 1160.33 |
| EGN | 4/30/2001 | 37.15 | 1249.46 |
| EGN | 5/31/2001 | 33 | 1255.82 |
| EGN | 6/29/2001 | 27.6 | 1228.39 |
| EGN | 7/31/2001 | 25.5 | 1211.07 |
| EGN | 8/31/2001 | 25.4 | 1133.58 |
| EGN | 9/28/2001 | 22.5 | 1040.9 |
| EGN | 10/31/2001 | 24.5 | 1059.96 |
| EGN | 11/30/2001 | 23.18 | 1139.16 |
| EGN | 12/31/2001 | 24.65 | 1148.08 |
| EGN | 1/31/2002 | 22.9 | 1130.2 |
| EGN | 2/28/2002 | 22.54 | 1106.73 |
| EGN | 3/28/2002 | 26.45 | 1147.39 |
| EGN | 4/30/2002 | 28.15 | 1076.75 |
| EGN | 5/31/2002 | 27.22 | 1067.13 |
| EGN | 6/28/2002 | 27.5 | 989.82 |
| EGN | 7/31/2002 | 24.7 | 910.6 |
| EGN | 8/30/2002 | 26.51 | 915.7 |
| EGN | 9/30/2002 | 25.31 | 815.28 |
| EGN | 10/31/2002 | 27.9 | 885.76 |
| EGN | 11/29/2002 | 26.72 | 936.31 |
| EGN | 12/31/2002 | 29.1 | 879.82 |
| EGN | 1/31/2003 | 30.37 | 855.7 |
| EGN | 2/28/2003 | 30.42 | 841.15 |
| GAS | 3/31/1998 | 42.25 | 1101.76 |
| GAS | 4/30/1998 | 40.9375 | 1111.75 |
| GAS | 5/29/1998 | 38.6875 | 1090.82 |
| GAS | 6/30/1998 | 40.125 | 1133.86 |

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|-----|------------|---------|---------|
| GAS | 7/31/1998 | 38.5 | 1120.73 |
| GAS | 8/31/1998 | 38.8125 | 957.43 |
| GAS | 9/30/1998 | 41.4375 | 1017.06 |
| GAS | 10/30/1998 | 42.375 | 1098.69 |
| GAS | 11/30/1998 | 42.0625 | 1163.7 |
| GAS | 12/31/1998 | 42.25 | 1229.4 |
| GAS | 1/29/1999 | 38.5625 | 1279.64 |
| GAS | 2/26/1999 | 38.1875 | 1238.33 |
| GAS | 3/31/1999 | 35.9375 | 1286.41 |
| GAS | 4/30/1999 | 36.375 | 1335.18 |
| GAS | 5/28/1999 | 37.625 | 1301.85 |
| GAS | 6/30/1999 | 38.0625 | 1372.86 |
| GAS | 7/30/1999 | 38.6875 | 1328.72 |
| GAS | 8/31/1999 | 38.6875 | 1320.41 |
| GAS | 9/30/1999 | 37.0625 | 1287.53 |
| GAS | 10/29/1999 | 38.75 | 1363.27 |
| GAS | 11/30/1999 | 34.6875 | 1389.41 |
| GAS | 12/31/1999 | 32.5 | 1469.25 |
| GAS | 1/31/2000 | 34.25 | 1393.12 |
| GAS | 2/29/2000 | 30.4375 | 1367.73 |
| GAS | 3/31/2000 | 32.9375 | 1503.54 |
| GAS | 4/28/2000 | 33.875 | 1452.53 |
| GAS | 5/31/2000 | 36.6875 | 1420.39 |
| GAS | 6/30/2000 | 32.625 | 1451.8 |
| GAS | 7/31/2000 | 34.6875 | 1431.06 |
| GAS | 8/31/2000 | 36.75 | 1517.68 |
| GAS | 9/29/2000 | 36.1875 | 1437 |
| GAS | 10/31/2000 | 35.3125 | 1429.01 |
| GAS | 11/30/2000 | 38.5625 | 1315.13 |
| GAS | 12/29/2000 | 43.1875 | 1320.14 |
| GAS | 1/31/2001 | 35.66 | 1366.02 |
| GAS | 2/28/2001 | 36.99 | 1239.95 |
| GAS | 3/30/2001 | 37.27 | 1160.33 |
| GAS | 4/30/2001 | 39.19 | 1249.46 |
| GAS | 5/31/2001 | 38.79 | 1255.82 |
| GAS | 6/29/2001 | 38.98 | 1228.39 |
| GAS | 7/31/2001 | 37.13 | 1211.07 |
| GAS | 8/31/2001 | 38.76 | 1133.58 |
| GAS | 9/28/2001 | 38.75 | 1040.9 |
| GAS | 10/31/2001 | 38.89 | 1059.96 |
| GAS | 11/30/2001 | 38.97 | 1139.16 |
| GAS | 12/31/2001 | 41.64 | 1148.08 |
| GAS | 1/31/2002 | 40.64 | 1130.2 |

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|-----|------------|---------|---------|
| GAS | 2/28/2002 | 41.85 | 1106.73 |
| GAS | 3/28/2002 | 45.55 | 1147.39 |
| GAS | 4/30/2002 | 46.78 | 1076.75 |
| GAS | 5/31/2002 | 48.06 | 1067.13 |
| GAS | 6/28/2002 | 45.75 | 989.82 |
| GAS | 7/31/2002 | 27 | 910.6 |
| GAS | 8/30/2002 | 28.4 | 915.7 |
| GAS | 9/30/2002 | 28.2 | 815.28 |
| GAS | 10/31/2002 | 31.04 | 885.76 |
| GAS | 11/29/2002 | 31.51 | 936.31 |
| GAS | 12/31/2002 | 34.03 | 879.82 |
| GAS | 1/31/2003 | 31.45 | 855.7 |
| GAS | 2/28/2003 | 30.09 | 841.15 |
| KSE | 3/31/1998 | 36.3125 | 1101.76 |
| KSE | 4/30/1998 | 34.125 | 1111.75 |
| KSE | 5/29/1998 | 33.6875 | 1090.82 |
| KSE | 6/30/1998 | 29.94 | 1133.86 |
| KSE | 7/31/1998 | 27.56 | 1120.73 |
| KSE | 8/31/1998 | 27.37 | 957.43 |
| KSE | 9/30/1998 | 28.69 | 1017.06 |
| KSE | 10/30/1998 | 29.875 | 1098.69 |
| KSE | 11/30/1998 | 29.6875 | 1163.7 |
| KSE | 12/31/1998 | 31 | 1229.4 |
| KSE | 1/29/1999 | 27.0625 | 1279.64 |
| KSE | 2/26/1999 | 26.5 | 1238.33 |
| KSE | 3/31/1999 | 25.125 | 1286.41 |
| KSE | 4/30/1999 | 26.75 | 1335.18 |
| KSE | 5/28/1999 | 27 | 1301.85 |
| KSE | 6/30/1999 | 26.375 | 1372.86 |
| KSE | 7/30/1999 | 27.75 | 1328.72 |
| KSE | 8/31/1999 | 29.5 | 1320.41 |
| KSE | 9/30/1999 | 28.75 | 1287.53 |
| KSE | 10/29/1999 | 28.125 | 1363.27 |
| KSE | 11/30/1999 | 25.6875 | 1389.41 |
| KSE | 12/31/1999 | 23.1875 | 1469.25 |
| KSE | 1/31/2000 | 23.4375 | 1393.12 |
| KSE | 2/29/2000 | 20.375 | 1367.73 |
| KSE | 3/31/2000 | 27.625 | 1503.54 |
| KSE | 4/28/2000 | 29.375 | 1452.53 |
| KSE | 5/31/2000 | 30.5 | 1420.39 |
| KSE | 6/30/2000 | 30.75 | 1451.8 |
| KSE | 7/31/2000 | 31.75 | 1431.06 |
| KSE | 8/31/2000 | 34.4375 | 1517.68 |

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|------|------------|---------|---------|
| KSE | 9/29/2000 | 40.125 | 1437 |
| KSE | 10/31/2000 | 35.1875 | 1429.01 |
| KSE | 11/30/2000 | 38.125 | 1315.13 |
| KSE | 12/29/2000 | 42.375 | 1320.14 |
| KSE | 1/31/2001 | 37.82 | 1366.02 |
| KSE | 2/28/2001 | 38.95 | 1239.95 |
| KSE | 3/30/2001 | 38.13 | 1160.33 |
| KSE | 4/30/2001 | 39.7 | 1249.46 |
| KSE | 5/31/2001 | 39.92 | 1255.82 |
| KSE | 6/29/2001 | 36.48 | 1228.39 |
| KSE | 7/31/2001 | 30.64 | 1211.07 |
| KSE | 8/31/2001 | 32.3 | 1133.58 |
| KSE | 9/28/2001 | 33.24 | 1040.9 |
| KSE | 10/31/2001 | 33.18 | 1059.96 |
| KSE | 11/30/2001 | 33.13 | 1139.16 |
| KSE | 12/31/2001 | 34.65 | 1148.08 |
| KSE | 1/31/2002 | 32.36 | 1130.2 |
| KSE | 2/28/2002 | 32.05 | 1106.73 |
| KSE | 3/28/2002 | 36.39 | 1147.39 |
| KSE | 4/30/2002 | 35.3 | 1076.75 |
| KSE | 5/31/2002 | 37.86 | 1067.13 |
| KSE | 6/28/2002 | 37.65 | 989.82 |
| KSE | 7/31/2002 | 34.9 | 910.6 |
| KSE | 8/30/2002 | 35.04 | 915.7 |
| KSE | 9/30/2002 | 33.5 | 815.28 |
| KSE | 10/31/2002 | 36.53 | 885.76 |
| KSE | 11/29/2002 | 35.29 | 936.31 |
| KSE | 12/31/2002 | 35.24 | 879.82 |
| KSE | 1/31/2003 | 34 | 855.7 |
| KSE | 2/28/2003 | 31.97 | 841.15 |
| MSEX | 3/31/1998 | 13.2 | 1101.76 |
| MSEX | 4/30/1998 | 13.2 | 1111.75 |
| MSEX | 5/29/1998 | 13.2412 | 1090.82 |
| MSEX | 6/30/1998 | 13.365 | 1133.86 |
| MSEX | 7/31/1998 | 14.2312 | 1120.73 |
| MSEX | 8/31/1998 | 13.695 | 957.43 |
| MSEX | 9/30/1998 | 14.1487 | 1017.06 |
| MSEX | 10/30/1998 | 14.685 | 1098.69 |
| MSEX | 11/30/1998 | 16.5 | 1163.7 |
| MSEX | 12/31/1998 | 16.005 | 1229.4 |
| MSEX | 1/29/1999 | 15.84 | 1279.64 |
| MSEX | 2/26/1999 | 14.355 | 1238.33 |
| MSEX | 3/31/1999 | 16.0875 | 1286.41 |

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|------|------------|---------|---------|
| MSEX | 4/30/1999 | 14.6025 | 1335.18 |
| MSEX | 5/28/1999 | 15.6337 | 1301.85 |
| MSEX | 6/30/1999 | 16.5825 | 1372.86 |
| MSEX | 7/30/1999 | 17.0775 | 1328.72 |
| MSEX | 8/31/1999 | 19.8 | 1320.41 |
| MSEX | 9/30/1999 | 19.8825 | 1287.53 |
| MSEX | 10/29/1999 | 20.46 | 1363.27 |
| MSEX | 11/30/1999 | 22.8525 | 1389.41 |
| MSEX | 12/31/1999 | 21.12 | 1469.25 |
| MSEX | 1/31/2000 | 20.2125 | 1393.12 |
| MSEX | 2/29/2000 | 17.4075 | 1367.73 |
| MSEX | 3/31/2000 | 19.14 | 1503.54 |
| MSEX | 4/28/2000 | 19.0987 | 1452.53 |
| MSEX | 5/31/2000 | 19.14 | 1420.39 |
| MSEX | 6/30/2000 | 18.8925 | 1451.8 |
| MSEX | 7/31/2000 | 18.48 | 1431.06 |
| MSEX | 8/31/2000 | 19.2225 | 1517.68 |
| MSEX | 9/29/2000 | 19.305 | 1437 |
| MSEX | 10/31/2000 | 17.985 | 1429.01 |
| MSEX | 11/30/2000 | 19.305 | 1315.13 |
| MSEX | 12/29/2000 | 22.11 | 1320.14 |
| MSEX | 1/31/2001 | 21.6562 | 1366.02 |
| MSEX | 2/28/2001 | 19.8825 | 1239.95 |
| MSEX | 3/30/2001 | 19.965 | 1160.33 |
| MSEX | 4/30/2001 | 20.559 | 1249.46 |
| MSEX | 5/31/2001 | 23.5686 | 1255.82 |
| MSEX | 6/29/2001 | 22.4664 | 1228.39 |
| MSEX | 7/31/2001 | 22.0704 | 1211.07 |
| MSEX | 8/31/2001 | 22.0902 | 1133.58 |
| MSEX | 9/28/2001 | 21.78 | 1040.9 |
| MSEX | 10/31/2001 | 22.1034 | 1059.96 |
| MSEX | 11/30/2001 | 22.176 | 1139.16 |
| MSEX | 12/31/2001 | 22.3872 | 1148.08 |
| MSEX | 1/31/2002 | 23.5 | 1130.2 |
| MSEX | 2/28/2002 | 22.75 | 1106.73 |
| MSEX | 3/28/2002 | 23.28 | 1147.39 |
| MSEX | 4/30/2002 | 24.75 | 1076.75 |
| MSEX | 5/31/2002 | 23.93 | 1067.13 |
| MSEX | 6/28/2002 | 26.27 | 989.82 |
| MSEX | 7/31/2002 | 24.44 | 910.6 |
| MSEX | 8/30/2002 | 23.4 | 915.7 |
| MSEX | 9/30/2002 | 22.5 | 815.28 |
| MSEX | 10/31/2002 | 22.1 | 885.76 |

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|------|------------|---------|---------|
| MSEX | 11/29/2002 | 22.349 | 936.31 |
| MSEX | 12/31/2002 | 20.97 | 879.82 |
| MSEX | 1/31/2003 | 21.98 | 855.7 |
| MSEX | 2/28/2003 | 22.17 | 841.15 |
| NJR | 3/31/1998 | 25.8637 | 1101.76 |
| NJR | 4/30/1998 | 24.915 | 1111.75 |
| NJR | 5/29/1998 | 23.7187 | 1090.82 |
| NJR | 6/30/1998 | 23.5537 | 1133.86 |
| NJR | 7/31/1998 | 22.605 | 1120.73 |
| NJR | 8/31/1998 | 22.2337 | 957.43 |
| NJR | 9/30/1998 | 23.5125 | 1017.06 |
| NJR | 10/30/1998 | 25.3687 | 1098.69 |
| NJR | 11/30/1998 | 25.6987 | 1163.7 |
| NJR | 12/31/1998 | 26.07 | 1229.4 |
| NJR | 1/29/1999 | 24.0075 | 1279.64 |
| NJR | 2/26/1999 | 23.0587 | 1238.33 |
| NJR | 3/31/1999 | 23.4712 | 1286.41 |
| NJR | 4/30/1999 | 24.3375 | 1335.18 |
| NJR | 5/28/1999 | 24.915 | 1301.85 |
| NJR | 6/30/1999 | 24.7087 | 1372.86 |
| NJR | 7/30/1999 | 26.1112 | 1328.72 |
| NJR | 8/31/1999 | 25.575 | 1320.41 |
| NJR | 9/30/1999 | 26.235 | 1287.53 |
| NJR | 10/29/1999 | 26.8537 | 1363.27 |
| NJR | 11/30/1999 | 26.565 | 1389.41 |
| NJR | 12/31/1999 | 25.7812 | 1469.25 |
| NJR | 1/31/2000 | 24.9562 | 1393.12 |
| NJR | 2/29/2000 | 24.5025 | 1367.73 |
| NJR | 3/31/2000 | 28.215 | 1503.54 |
| NJR | 4/28/2000 | 26.565 | 1452.53 |
| NJR | 5/31/2000 | 25.575 | 1420.39 |
| NJR | 6/30/2000 | 25.1212 | 1451.8 |
| NJR | 7/31/2000 | 26.3175 | 1431.06 |
| NJR | 8/31/2000 | 26.4 | 1517.68 |
| NJR | 9/29/2000 | 26.8125 | 1437 |
| NJR | 10/31/2000 | 26.3587 | 1429.01 |
| NJR | 11/30/2000 | 26.565 | 1315.13 |
| NJR | 12/29/2000 | 28.545 | 1320.14 |
| NJR | 1/31/2001 | 24.5916 | 1366.02 |
| NJR | 2/28/2001 | 25.3704 | 1239.95 |
| NJR | 3/30/2001 | 27.159 | 1160.33 |
| NJR | 4/30/2001 | 28.5714 | 1249.46 |
| NJR | 5/31/2001 | 29.4624 | 1255.82 |

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|-----|------------|---------|---------|
| NJR | 6/29/2001 | 29.832 | 1228.39 |
| NJR | 7/31/2001 | 28.677 | 1211.07 |
| NJR | 8/31/2001 | 29.7 | 1133.58 |
| NJR | 9/28/2001 | 29.1786 | 1040.9 |
| NJR | 10/31/2001 | 29.7 | 1059.96 |
| NJR | 11/30/2001 | 30.888 | 1139.16 |
| NJR | 12/31/2001 | 30.888 | 1148.08 |
| NJR | 1/31/2002 | 29.9442 | 1130.2 |
| NJR | 2/28/2002 | 30.0894 | 1106.73 |
| NJR | 3/28/2002 | 30.24 | 1147.39 |
| NJR | 4/30/2002 | 32 | 1076.75 |
| NJR | 5/31/2002 | 30.5 | 1067.13 |
| NJR | 6/28/2002 | 29.85 | 989.82 |
| NJR | 7/31/2002 | 30.2 | 910.6 |
| NJR | 8/30/2002 | 31.25 | 915.7 |
| NJR | 9/30/2002 | 32.9 | 815.28 |
| NJR | 10/31/2002 | 31.58 | 885.76 |
| NJR | 11/29/2002 | 31.45 | 936.31 |
| NJR | 12/31/2002 | 31.59 | 879.82 |
| NJR | 1/31/2003 | 31.81 | 855.7 |
| NJR | 2/28/2003 | 32.07 | 841.15 |
| PGL | 3/31/1998 | 36.375 | 1101.76 |
| PGL | 4/30/1998 | 36.25 | 1111.75 |
| PGL | 5/29/1998 | 36.875 | 1090.82 |
| PGL | 6/30/1998 | 38.625 | 1133.86 |
| PGL | 7/31/1998 | 35 | 1120.73 |
| PGL | 8/31/1998 | 33.125 | 957.43 |
| PGL | 9/30/1998 | 36 | 1017.06 |
| PGL | 10/30/1998 | 36.875 | 1098.69 |
| PGL | 11/30/1998 | 37.6875 | 1163.7 |
| PGL | 12/31/1998 | 39.875 | 1229.4 |
| PGL | 1/29/1999 | 34.3125 | 1279.64 |
| PGL | 2/26/1999 | 33.9375 | 1238.33 |
| PGL | 3/31/1999 | 32.3125 | 1286.41 |
| PGL | 4/30/1999 | 37.375 | 1335.18 |
| PGL | 5/28/1999 | 38.5 | 1301.85 |
| PGL | 6/30/1999 | 37.6875 | 1372.86 |
| PGL | 7/30/1999 | 36.8125 | 1328.72 |
| PGL | 8/31/1999 | 36.4375 | 1320.41 |
| PGL | 9/30/1999 | 35.1875 | 1287.53 |
| PGL | 10/29/1999 | 38 | 1363.27 |
| PGL | 11/30/1999 | 36.75 | 1389.41 |
| PGL | 12/31/1999 | 33.5 | 1469.25 |

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|-----|------------|---------|---------|
| PGL | 1/31/2000 | 31.25 | 1393.12 |
| PGL | 2/29/2000 | 28.9375 | 1367.73 |
| PGL | 3/31/2000 | 27.4375 | 1503.54 |
| PGL | 4/28/2000 | 31.0625 | 1452.53 |
| PGL | 5/31/2000 | 33.9375 | 1420.39 |
| PGL | 6/30/2000 | 32.375 | 1451.8 |
| PGL | 7/31/2000 | 31.6875 | 1431.06 |
| PGL | 8/31/2000 | 32.5 | 1517.68 |
| PGL | 9/29/2000 | 33.375 | 1437 |
| PGL | 10/31/2000 | 34.375 | 1429.01 |
| PGL | 11/30/2000 | 41.125 | 1315.13 |
| PGL | 12/29/2000 | 44.75 | 1320.14 |
| PGL | 1/31/2001 | 36.74 | 1366.02 |
| PGL | 2/28/2001 | 39.22 | 1239.95 |
| PGL | 3/30/2001 | 38.87 | 1160.33 |
| PGL | 4/30/2001 | 39.75 | 1249.46 |
| PGL | 5/31/2001 | 39.39 | 1255.82 |
| PGL | 6/29/2001 | 40.2 | 1228.39 |
| PGL | 7/31/2001 | 38.06 | 1211.07 |
| PGL | 8/31/2001 | 39.3 | 1133.58 |
| PGL | 9/28/2001 | 39.76 | 1040.9 |
| PGL | 10/31/2001 | 38.29 | 1059.96 |
| PGL | 11/30/2001 | 38.42 | 1139.16 |
| PGL | 12/31/2001 | 37.93 | 1148.08 |
| PGL | 1/31/2002 | 36.69 | 1130.2 |
| PGL | 2/28/2002 | 37.15 | 1106.73 |
| PGL | 3/28/2002 | 39.38 | 1147.39 |
| PGL | 4/30/2002 | 39 | 1076.75 |
| PGL | 5/31/2002 | 39.38 | 1067.13 |
| PGL | 6/28/2002 | 36.46 | 989.82 |
| PGL | 7/31/2002 | 35.11 | 910.6 |
| PGL | 8/30/2002 | 33.42 | 915.7 |
| PGL | 9/30/2002 | 33.69 | 815.28 |
| PGL | 10/31/2002 | 36.35 | 885.76 |
| PGL | 11/29/2002 | 35.99 | 936.31 |
| PGL | 12/31/2002 | 38.65 | 879.82 |
| PGL | 1/31/2003 | 36.81 | 855.7 |
| PGL | 2/28/2003 | 35.8 | 841.15 |
| PNY | 3/31/1998 | 34.75 | 1101.76 |
| PNY | 4/30/1998 | 34.0625 | 1111.75 |
| PNY | 5/29/1998 | 31.6875 | 1090.82 |
| PNY | 6/30/1998 | 33.625 | 1133.86 |
| PNY | 7/31/1998 | 29.125 | 1120.73 |

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|-----|------------|---------|---------|
| PNY | 8/31/1998 | 28.1875 | 957.43 |
| PNY | 9/30/1998 | 33.875 | 1017.06 |
| PNY | 10/30/1998 | 34.75 | 1098.69 |
| PNY | 11/30/1998 | 35 | 1163.7 |
| PNY | 12/31/1998 | 36.125 | 1229.4 |
| PNY | 1/29/1999 | 30.875 | 1279.64 |
| PNY | 2/26/1999 | 34.125 | 1238.33 |
| PNY | 3/31/1999 | 35 | 1286.41 |
| PNY | 4/30/1999 | 31.875 | 1335.18 |
| PNY | 5/28/1999 | 33.8125 | 1301.85 |
| PNY | 6/30/1999 | 31.125 | 1372.86 |
| PNY | 7/30/1999 | 34.0625 | 1328.72 |
| PNY | 8/31/1999 | 33.5625 | 1320.41 |
| PNY | 9/30/1999 | 30.5 | 1287.53 |
| PNY | 10/29/1999 | 32 | 1363.27 |
| PNY | 11/30/1999 | 31.6875 | 1389.41 |
| PNY | 12/31/1999 | 30.125 | 1469.25 |
| PNY | 1/31/2000 | 28.5 | 1393.12 |
| PNY | 2/29/2000 | 24.75 | 1367.73 |
| PNY | 3/31/2000 | 26.0625 | 1503.54 |
| PNY | 4/28/2000 | 28.25 | 1452.53 |
| PNY | 5/31/2000 | 29.75 | 1420.39 |
| PNY | 6/30/2000 | 26.5625 | 1451.8 |
| PNY | 7/31/2000 | 28.375 | 1431.06 |
| PNY | 8/31/2000 | 27.6875 | 1517.68 |
| PNY | 9/29/2000 | 30.625 | 1437 |
| PNY | 10/31/2000 | 30.5 | 1429.01 |
| PNY | 11/30/2000 | 33.0625 | 1315.13 |
| PNY | 12/29/2000 | 38.1875 | 1320.14 |
| PNY | 1/31/2001 | 33.6 | 1366.02 |
| PNY | 2/28/2001 | 32.2 | 1239.95 |
| PNY | 3/30/2001 | 35.5 | 1160.33 |
| PNY | 4/30/2001 | 35.55 | 1249.46 |
| PNY | 5/31/2001 | 35.49 | 1255.82 |
| PNY | 6/29/2001 | 35.52 | 1228.39 |
| PNY | 7/31/2001 | 34 | 1211.07 |
| PNY | 8/31/2001 | 32.55 | 1133.58 |
| PNY | 9/28/2001 | 31.14 | 1040.9 |
| PNY | 10/31/2001 | 31.8 | 1059.96 |
| PNY | 11/30/2001 | 33.6 | 1139.16 |
| PNY | 12/31/2001 | 35.8 | 1148.08 |
| PNY | 1/31/2002 | 33.71 | 1130.2 |
| PNY | 2/28/2002 | 32.01 | 1106.73 |

| | | | |
|-----|------------|-------|---------|
| PNY | 3/28/2002 | 35.6 | 1147.39 |
| PNY | 4/30/2002 | 37.25 | 1076.75 |
| PNY | 5/31/2002 | 35.9 | 1067.13 |
| PNY | 6/28/2002 | 36.98 | 989.82 |
| PNY | 7/31/2002 | 33.8 | 910.6 |
| PNY | 8/30/2002 | 35.99 | 915.7 |
| PNY | 9/30/2002 | 35.47 | 815.28 |
| PNY | 10/31/2002 | 35.76 | 885.76 |
| PNY | 11/29/2002 | 34.31 | 936.31 |
| PNY | 12/31/2002 | 35.35 | 879.82 |
| PNY | 1/31/2003 | 34.75 | 855.7 |
| PNY | 2/28/2003 | 34.41 | 841.15 |
| PSC | 3/31/1998 | 13.8 | 1101.76 |
| PSC | 4/30/1998 | 13.52 | 1111.75 |
| PSC | 5/29/1998 | 12.6 | 1090.82 |
| PSC | 6/30/1998 | 14 | 1133.86 |
| PSC | 7/31/1998 | 13.68 | 1120.73 |
| PSC | 8/31/1998 | 16.28 | 957.43 |
| PSC | 9/30/1998 | 17.16 | 1017.06 |
| PSC | 10/30/1998 | 15.72 | 1098.69 |
| PSC | 11/30/1998 | 16.2 | 1163.7 |
| PSC | 12/31/1998 | 18.92 | 1229.4 |
| PSC | 1/29/1999 | 16.24 | 1279.64 |
| PSC | 2/26/1999 | 13.8 | 1238.33 |
| PSC | 3/31/1999 | 14.52 | 1286.41 |
| PSC | 4/30/1999 | 14.44 | 1335.18 |
| PSC | 5/28/1999 | 14.08 | 1301.85 |
| PSC | 6/30/1999 | 14.76 | 1372.86 |
| PSC | 7/30/1999 | 14.64 | 1328.72 |
| PSC | 8/31/1999 | 14.84 | 1320.41 |
| PSC | 9/30/1999 | 14.92 | 1287.53 |
| PSC | 10/29/1999 | 14.72 | 1363.27 |
| PSC | 11/30/1999 | 14.8 | 1389.41 |
| PSC | 12/31/1999 | 13.24 | 1469.25 |
| PSC | 1/31/2000 | 12.84 | 1393.12 |
| PSC | 2/29/2000 | 11.84 | 1367.73 |
| PSC | 3/31/2000 | 11.6 | 1503.54 |
| PSC | 4/28/2000 | 15.36 | 1452.53 |
| PSC | 5/31/2000 | 15.84 | 1420.39 |
| PSC | 6/30/2000 | 13.28 | 1451.8 |
| PSC | 7/31/2000 | 14.2 | 1431.06 |
| PSC | 8/31/2000 | 15 | 1517.68 |
| PSC | 9/29/2000 | 14.84 | 1437 |

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|-----|------------|---------|---------|
| PSC | 10/31/2000 | 15 | 1429.01 |
| PSC | 11/30/2000 | 15 | 1315.13 |
| PSC | 12/29/2000 | 19.6 | 1320.14 |
| PSC | 1/31/2001 | 16.976 | 1366.02 |
| PSC | 2/28/2001 | 18.4 | 1239.95 |
| PSC | 3/30/2001 | 18.848 | 1160.33 |
| PSC | 4/30/2001 | 18.64 | 1249.46 |
| PSC | 5/31/2001 | 18.256 | 1255.82 |
| PSC | 6/29/2001 | 20.4 | 1228.39 |
| PSC | 7/31/2001 | 20.432 | 1211.07 |
| PSC | 8/31/2001 | 22.08 | 1133.58 |
| PSC | 9/28/2001 | 21.48 | 1040.9 |
| PSC | 10/31/2001 | 28.5 | 1059.96 |
| PSC | 11/30/2001 | 23.88 | 1139.16 |
| PSC | 12/31/2001 | 22.55 | 1148.08 |
| PSC | 1/31/2002 | 23.4 | 1130.2 |
| PSC | 2/28/2002 | 23.22 | 1106.73 |
| PSC | 3/28/2002 | 23.5 | 1147.39 |
| PSC | 4/30/2002 | 24.1 | 1076.75 |
| PSC | 5/31/2002 | 20.7 | 1067.13 |
| PSC | 6/28/2002 | 20.2 | 989.82 |
| PSC | 7/31/2002 | 19.8 | 910.6 |
| PSC | 8/30/2002 | 18.86 | 915.7 |
| PSC | 9/30/2002 | 20.3 | 815.28 |
| PSC | 10/31/2002 | 21.49 | 885.76 |
| PSC | 11/29/2002 | 19.99 | 936.31 |
| PSC | 12/31/2002 | 20.6 | 879.82 |
| PSC | 1/31/2003 | 20.1 | 855.7 |
| PSC | 2/28/2003 | 20.93 | 841.15 |
| SJI | 3/31/1998 | 29.6875 | 1101.76 |
| SJI | 4/30/1998 | 27.4375 | 1111.75 |
| SJI | 5/29/1998 | 27.3125 | 1090.82 |
| SJI | 6/30/1998 | 27.625 | 1133.86 |
| SJI | 7/31/1998 | 25.8125 | 1120.73 |
| SJI | 8/31/1998 | 22.75 | 957.43 |
| SJI | 9/30/1998 | 25.8125 | 1017.06 |
| SJI | 10/30/1998 | 25.625 | 1098.69 |
| SJI | 11/30/1998 | 25.8125 | 1163.7 |
| SJI | 12/31/1998 | 26.1875 | 1229.4 |
| SJI | 1/29/1999 | 25.625 | 1279.64 |
| SJI | 2/26/1999 | 24.3125 | 1238.33 |
| SJI | 3/31/1999 | 21.625 | 1286.41 |
| SJI | 4/30/1999 | 24 | 1335.18 |

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|-----|------------|---------|---------|
| SJI | 5/28/1999 | 28 | 1301.85 |
| SJI | 6/30/1999 | 28.25 | 1372.86 |
| SJI | 7/30/1999 | 30 | 1328.72 |
| SJI | 8/31/1999 | 28.5 | 1320.41 |
| SJI | 9/30/1999 | 26.375 | 1287.53 |
| SJI | 10/29/1999 | 26 | 1363.27 |
| SJI | 11/30/1999 | 29.3125 | 1389.41 |
| SJI | 12/31/1999 | 28.4375 | 1469.25 |
| SJI | 1/31/2000 | 29 | 1393.12 |
| SJI | 2/29/2000 | 29.25 | 1367.73 |
| SJI | 3/31/2000 | 28.1875 | 1503.54 |
| SJI | 4/28/2000 | 26.75 | 1452.53 |
| SJI | 5/31/2000 | 26.0625 | 1420.39 |
| SJI | 6/30/2000 | 26 | 1451.8 |
| SJI | 7/31/2000 | 27.0625 | 1431.06 |
| SJI | 8/31/2000 | 27 | 1517.68 |
| SJI | 9/29/2000 | 29.1875 | 1437 |
| SJI | 10/31/2000 | 29.125 | 1429.01 |
| SJI | 11/30/2000 | 29.375 | 1315.13 |
| SJI | 12/29/2000 | 29.75 | 1320.14 |
| SJI | 1/31/2001 | 29.5 | 1366.02 |
| SJI | 2/28/2001 | 32 | 1239.95 |
| SJI | 3/30/2001 | 29.5 | 1160.33 |
| SJI | 4/30/2001 | 30.95 | 1249.46 |
| SJI | 5/31/2001 | 30.4 | 1255.82 |
| SJI | 6/29/2001 | 31.15 | 1228.39 |
| SJI | 7/31/2001 | 31.3 | 1211.07 |
| SJI | 8/31/2001 | 32.65 | 1133.58 |
| SJI | 9/28/2001 | 30.65 | 1040.9 |
| SJI | 10/31/2001 | 33.05 | 1059.96 |
| SJI | 11/30/2001 | 33.7 | 1139.16 |
| SJI | 12/31/2001 | 32.6 | 1148.08 |
| SJI | 1/31/2002 | 31.68 | 1130.2 |
| SJI | 2/28/2002 | 30.45 | 1106.73 |
| SJI | 3/28/2002 | 31.55 | 1147.39 |
| SJI | 4/30/2002 | 35.5 | 1076.75 |
| SJI | 5/31/2002 | 35.12 | 1067.13 |
| SJI | 6/28/2002 | 33.75 | 989.82 |
| SJI | 7/31/2002 | 31.7 | 910.6 |
| SJI | 8/30/2002 | 33.06 | 915.7 |
| SJI | 9/30/2002 | 32.66 | 815.28 |
| SJI | 10/31/2002 | 31.93 | 885.76 |
| SJI | 11/29/2002 | 32.6 | 936.31 |

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|-----|------------|---------|---------|
| SJI | 12/31/2002 | 33.02 | 879.82 |
| SJI | 1/31/2003 | 32.1 | 855.7 |
| SJI | 2/28/2003 | 31.93 | 841.15 |
| SJW | 3/31/1998 | 70.375 | 1101.76 |
| SJW | 4/30/1998 | 60 | 1111.75 |
| SJW | 5/29/1998 | 64.75 | 1090.82 |
| SJW | 6/30/1998 | 59 | 1133.86 |
| SJW | 7/31/1998 | 55.875 | 1120.73 |
| SJW | 8/31/1998 | 52.25 | 957.43 |
| SJW | 9/30/1998 | 57.75 | 1017.06 |
| SJW | 10/30/1998 | 55.75 | 1098.69 |
| SJW | 11/30/1998 | 61.25 | 1163.7 |
| SJW | 12/31/1998 | 58.75 | 1229.4 |
| SJW | 1/29/1999 | 60 | 1279.64 |
| SJW | 2/26/1999 | 58.25 | 1238.33 |
| SJW | 3/31/1999 | 64.75 | 1286.41 |
| SJW | 4/30/1999 | 61.375 | 1335.18 |
| SJW | 5/28/1999 | 65.5 | 1301.85 |
| SJW | 6/30/1999 | 79.625 | 1372.86 |
| SJW | 7/29/1999 | 80.875 | 1341.03 |
| SJW | 8/31/1999 | 85.875 | 1320.41 |
| SJW | 9/30/1999 | 89.375 | 1287.53 |
| SJW | 10/29/1999 | 117.25 | 1363.27 |
| SJW | 11/30/1999 | 120.5 | 1389.41 |
| SJW | 12/31/1999 | 120.25 | 1469.25 |
| SJW | 1/31/2000 | 116.25 | 1393.12 |
| SJW | 2/29/2000 | 112.625 | 1367.73 |
| SJW | 3/31/2000 | 117 | 1503.54 |
| SJW | 4/28/2000 | 115.75 | 1452.53 |
| SJW | 5/31/2000 | 113 | 1420.39 |
| SJW | 6/30/2000 | 118.875 | 1451.8 |
| SJW | 7/31/2000 | 120.5 | 1431.06 |
| SJW | 8/31/2000 | 119.5 | 1517.68 |
| SJW | 9/29/2000 | 118.75 | 1437 |
| SJW | 10/31/2000 | 118.875 | 1429.01 |
| SJW | 11/30/2000 | 112.5 | 1315.13 |
| SJW | 12/29/2000 | 102 | 1320.14 |
| SJW | 1/31/2001 | 97.99 | 1366.02 |
| SJW | 2/28/2001 | 74.55 | 1239.95 |
| SJW | 3/30/2001 | 79.75 | 1160.33 |
| SJW | 4/30/2001 | 80.7 | 1249.46 |
| SJW | 5/31/2001 | 79.75 | 1255.82 |
| SJW | 6/29/2001 | 85.5 | 1228.39 |

| | | | |
|-----|------------|---------|---------|
| SJW | 7/31/2001 | 85.75 | 1211.07 |
| SJW | 8/31/2001 | 85.9 | 1133.58 |
| SJW | 9/28/2001 | 82 | 1040.9 |
| SJW | 10/31/2001 | 82.01 | 1059.96 |
| SJW | 11/30/2001 | 88 | 1139.16 |
| SJW | 12/31/2001 | 85.29 | 1148.08 |
| SJW | 1/31/2002 | 80.35 | 1130.2 |
| SJW | 2/28/2002 | 79.65 | 1106.73 |
| SJW | 3/28/2002 | 81.2 | 1147.39 |
| SJW | 4/30/2002 | 84.5 | 1076.75 |
| SJW | 5/31/2002 | 80.75 | 1067.13 |
| SJW | 6/28/2002 | 81 | 989.82 |
| SJW | 7/31/2002 | 77.75 | 910.6 |
| SJW | 8/30/2002 | 81.25 | 915.7 |
| SJW | 9/30/2002 | 78 | 815.28 |
| SJW | 10/31/2002 | 79.75 | 885.76 |
| SJW | 11/29/2002 | 78.89 | 936.31 |
| SJW | 12/31/2002 | 78.05 | 879.82 |
| SJW | 1/31/2003 | 79.24 | 855.7 |
| SJW | 2/28/2003 | 78.91 | 841.15 |
| WGL | 3/31/1998 | 27.375 | 1101.76 |
| WGL | 4/30/1998 | 27.1875 | 1111.75 |
| WGL | 5/29/1998 | 26.0625 | 1090.82 |
| WGL | 6/30/1998 | 26.75 | 1133.86 |
| WGL | 7/31/1998 | 23.75 | 1120.73 |
| WGL | 8/31/1998 | 23.75 | 957.43 |
| WGL | 9/30/1998 | 27.6875 | 1017.06 |
| WGL | 10/30/1998 | 26.4375 | 1098.69 |
| WGL | 11/30/1998 | 25.5 | 1163.7 |
| WGL | 12/31/1998 | 27 | 1229.4 |
| WGL | 1/29/1999 | 24 | 1279.64 |
| WGL | 2/26/1999 | 23.9375 | 1238.33 |
| WGL | 3/31/1999 | 22.625 | 1286.41 |
| WGL | 4/30/1999 | 23.5625 | 1335.18 |
| WGL | 5/28/1999 | 24.4375 | 1301.85 |
| WGL | 6/30/1999 | 26 | 1372.86 |
| WGL | 7/30/1999 | 27.875 | 1328.72 |
| WGL | 8/31/1999 | 26.6875 | 1320.41 |
| WGL | 9/30/1999 | 27 | 1287.53 |
| WGL | 10/29/1999 | 27.1875 | 1363.27 |
| WGL | 11/30/1999 | 28 | 1389.41 |
| WGL | 12/31/1999 | 27.5 | 1469.25 |
| WGL | 1/31/2000 | 25.125 | 1393.12 |

| | | | |
|-----|------------|---------|---------|
| WGL | 2/29/2000 | 23.875 | 1367.73 |
| WGL | 3/31/2000 | 27.1875 | 1503.54 |
| WGL | 4/28/2000 | 25.625 | 1452.53 |
| WGL | 5/31/2000 | 26.625 | 1420.39 |
| WGL | 6/30/2000 | 24.0625 | 1451.8 |
| WGL | 7/31/2000 | 24.625 | 1431.06 |
| WGL | 8/31/2000 | 25.3125 | 1517.68 |
| WGL | 9/29/2000 | 26.875 | 1437 |
| WGL | 10/31/2000 | 25.5 | 1429.01 |
| WGL | 11/30/2000 | 27.6875 | 1315.13 |
| WGL | 12/29/2000 | 30.4375 | 1320.14 |
| WGL | 1/31/2001 | 27.8 | 1366.02 |
| WGL | 2/28/2001 | 27.36 | 1239.95 |
| WGL | 3/30/2001 | 27.65 | 1160.33 |
| WGL | 4/30/2001 | 28.6 | 1249.46 |
| WGL | 5/31/2001 | 27.99 | 1255.82 |
| WGL | 6/29/2001 | 27.11 | 1228.39 |
| WGL | 7/31/2001 | 27.83 | 1211.07 |
| WGL | 8/31/2001 | 27.01 | 1133.58 |
| WGL | 9/28/2001 | 26.89 | 1040.9 |
| WGL | 10/31/2001 | 27.06 | 1059.96 |
| WGL | 11/30/2001 | 27.72 | 1139.16 |
| WGL | 12/31/2001 | 29.07 | 1148.08 |
| WGL | 1/31/2002 | 26.27 | 1130.2 |
| WGL | 2/28/2002 | 26.7 | 1106.73 |
| WGL | 3/28/2002 | 26.86 | 1147.39 |
| WGL | 4/30/2002 | 27.1 | 1076.75 |
| WGL | 5/31/2002 | 26.63 | 1067.13 |
| WGL | 6/28/2002 | 25.9 | 989.82 |
| WGL | 7/31/2002 | 24.41 | 910.6 |
| WGL | 8/30/2002 | 24.18 | 915.7 |
| WGL | 9/30/2002 | 23.91 | 815.28 |
| WGL | 10/31/2002 | 23.13 | 885.76 |
| WGL | 11/29/2002 | 23.11 | 936.31 |
| WGL | 12/31/2002 | 23.92 | 879.82 |
| WGL | 1/31/2003 | 25.33 | 855.7 |
| WGL | 2/28/2003 | 25.14 | 841.15 |

ATTACHMENT B

Financial Markets and Corporate Strategy

HG181
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1998

Mark Grinblatt

University of California at Los Angeles

UCLA

Sheridan Titman

University of Texas—Austin



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To my dear brother Arnie, for his courage, perseverance, and inspiration.
M. G.

To my family, for their enduring love and support.
S. T.

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FINANCIAL MARKETS AND CORPORATE STRATEGY

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5.10 Estimating Betas, Risk-Free Returns, Risk Premiums, and the Market Portfolio

To implement the risk-expected return relation of the Capital Asset Pricing Model, it is necessary to estimate its parameters. These include the risk-free return, beta, the market risk premium, and the market portfolio itself.

Risk-Free or Zero-Beta Returns

Most academic studies of the CAPM have used short-term Treasury bill returns as proxies for the risk-free return. However, as Black, Jensen, and Scholes (1972), among others, have noted, this rate seems to be too low as a zero-beta return. An alternative is to use the zero-beta expected return estimate that comes from fitting the intercept in the risk-expected return equation to all stocks. Interestingly, the risk-free rate employed in derivative securities pricing models, which is the London interbank offered rate (LIBOR),²⁶ appears to be much closer to this fitted number.

Beta Estimation and Beta Shrinkage

Beta, as mentioned previously, is the notation for the covariance divided by the variance because this ratio is the appropriate slope coefficient in a regression. In practice, one never obtains the true beta, but it is possible to obtain an estimate. Estimation with historical data is easy after recognizing that the ratio of covariance to variance is a slope coefficient, which can be obtained from a linear regression. The left-hand variable in the regression is the return of the stock on which beta is being estimated; the right-hand side is a proxy for the market return (e.g., the return of the S&P 500). Many software packages and calculators have built-in regression routines that will use these data to estimate beta as the regression slope coefficient.

Example 5.11 provides real-world data and illustrates both a beta calculation and the estimation of expected return using beta.

Example 5.11: Estimating Beta and the Expected Return for Dell Computer
Historical quarterly returns (in %) for Dell Computer and the S&P 500 are given below:

| | Dell | | | | S&P 500 | | | |
|------|--------|--------|--------|--------|---------|------|------|-------|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| 1991 | — | — | — | 9.04 | — | — | — | 11.43 |
| 1992 | 41.95 | -25.26 | 57.93 | 67.68 | -2.55 | 1.97 | 3.10 | 5.10 |
| 1993 | -26.82 | -46.62 | -11.33 | 36.09 | 4.28 | .51 | 2.56 | 2.31 |
| 1994 | 11.60 | 4.46 | 41.94 | 9.52 | -3.81 | .41 | 4.92 | -.03 |
| 1995 | 6.71 | 37.43 | 41.37 | -21.18 | 9.74 | 9.49 | 7.95 | 5.96 |

a. What is the annualized expected return required by investors in Dell Computer stock as estimated by averaging the 17 quarterly returns from the end of 1991 through 1995 and multiplying by 4?

²⁶See Chapter 2.